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14 States "World-Class" in School Science
National Education Goals Panel Report Compares Achievement of States and Countries

28 States Improved in Mathematics
Colorado and Connecticut Earn Most Gold Stars for Achievement

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To arrange an interview with NEGP members from CA, CO, ID, IL, KS, KY, MI, NJ, NM, NC, PA, VT, WV, or WI please contact Emily Wurtz at 202-724-0015, or Chris Beakey at 202-667-0901.

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Washington, D.C.—A new report, *Mathematics and Science Achievement State by State, 1998*, released by the National Education Goals Panel, found that most states have made progress raising student mathematics achievement, part of Goals 3 and 5 of the National Education Goals, and 14 states would be expected to achieve "world-class" levels of performance in science. Students in the majority of states (28) have improved in either grade 4 or grade 8 mathematics or both between 1990 and 1996. The Panel awarded one gold star for improvement at each grade; six states earned two stars for improvement in both grades.

The report also compared national and international 8th grade science assessments and found that 14 states would be expected to be outperformed only by Singapore if individual states had taken the Third International Mathematics and Science Study (TIMSS). The Panel, considering this a sign of "world-class" performance, awarded these states an extra gold star. Only two states – Colorado and Connecticut – earned three stars for showing improvement in both 4th and 8th grade mathematics and world-class performance in 8th grade science.

Analysis of the percentage of students who scored at the two highest levels on the National Assessment of Educational Progress (NAEP), an important nationwide test of student achievement, shows an increase nationally and in seven states in 4th grade mathematics and an increase nationally and in 27 states in 8th grade mathematics. In no state has achievement declined by an amount that is statistically significant.

"The report shows that math and science education is improving in most of the nation," said NEGP Chair Cecil H. Underwood, Governor of West Virginia. "U.S. students in 14 states receive a science education that's at world-class levels. In 28 states, math scores are on the upswing. While problems in education do exist, the numbers show how we are succeeding in many places in the country."

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Mathematics and Science Achievement is the first Goals Panel report to present specific figures on student achievement in states to:

- Show whether student achievement is increasing over time, so that policymakers can judge the success of state programs;
- Compare state performance relative to other states and the nation as a whole to see where improvement is most needed;
- Benchmark individual states against other countries to see how states compare to the best in the world; and
- Measure how specific groups of students are performing academically, so that states can target educational services appropriately.

"This report recognizes that student performance can vary enormously from one state to the other and even by subgroups within a state. Some states score near the top of the international club while others languish," said Underwood. "In four pages per state, the Goals Panel provides a snapshot of how student performance compares among the states and internationally. We can use this information on progress toward the goals to take what works in high-performing states and apply these lessons to schools in other states."

International Comparisons

Today's NEGP release reports results from a recent research study that links states' 1996 NAEP scores with country results from the 1995 TIMSS. The most comprehensive international study of mathematics and science ever conducted, TIMSS tested half a million students in 41 countries. Linking the two assessments allowed this report to show how each state would be expected to perform on TIMSS, relative to the nations who participated in the actual assessment. Overall, students in 20 of the 41 nations performed significantly higher than U.S. eighth graders in mathematics and nine nations performed significantly higher in 8th grade science.

When NAEP 8th grade science scores were linked to TIMSS, 14 states showed world-class performance. Students in only one nation – Singapore – would be expected to outperform these eighth graders in the following states:

Colorado	Minnesota	Utah
Connecticut	Montana	Vermont
Iowa	Nebraska	Wisconsin
Maine	North Dakota	Wyoming
Massachusetts	Oregon	

No state's eighth graders performed this well in mathematics. However, seven states did score high enough that their students would be expected to be outperformed by students in only six other nations. They were:

Iowa	Montana	North Dakota
Maine	Nebraska	Wisconsin
Minnesota		

"The high scores of 14 of our states, those that would be expected to be exceeded only by Singapore, show the error of those who argue that Americans cannot reach high standards," said Underwood. "There is nothing peculiar to the American system that prevents our children from reaching high levels. We have a long way to go in reaching our National Education Goal of being first in the world in mathematics and science. But the stellar achievement of students in states from Maine to Nebraska to Oregon show we can do it; we can make our schools world-class."

4th Grade Mathematics

Seven states demonstrated improvement at the fourth grade level between 1992 and 1996. They are:

Colorado	North Carolina	West Virginia
Connecticut	Tennessee	
Indiana	Texas	

Across the nation, 21% of U.S. fourth graders scored at the Proficient level or higher on the 1996 mathematics NAEP. This is a significant increase from 1990, when only 13% reached that level. In 1996, the percentage of public school 4th graders in each state who scored at the Proficient level or higher ranged from 3% to 31%. In four states, the percentage of 4th graders who scored at or above the Proficient level was significantly higher than the national average:

Connecticut – 31%	Maine – 27%
Minnesota – 29%	Wisconsin – 27%

8th Grade Mathematics

Twenty seven (27) states made statistically significant improvements in 8th grade mathematics between 1990 and 1996. They are:

Arizona	Iowa	New York
Arkansas	Kentucky	North Carolina
California	Maryland	North Dakota
Colorado	Michigan	Oregon
Connecticut	Minnesota	Rhode Island
Delaware	Montana	Texas
Florida	Nebraska	West Virginia
Hawaii	New Hampshire	Wisconsin
Indiana	New Mexico	Wyoming

Across the nation, 24% of U.S. eighth graders scored at the Proficient level or higher on the 1996 mathematics NAEP. This is a significant increase from 1990, when only 15% reached that level. In 1996, the percentage of public school 8th graders in each state who scored at the Proficient level or higher ranged from 5% to 34%. In nine states the percentage of public school 8th graders who scored at or above the Proficient level was significantly higher than the national average:

Minnesota – 34%	Wisconsin – 32%	Maine – 31%
North Dakota – 33%	Connecticut – 31%	Nebraska – 31%
Montana – 32%	Iowa – 31%	Alaska – 30%

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Six states earned two gold stars for significant improvements in both grades. They are:

Colorado	Indiana	Texas
Connecticut	North Carolina	West Virginia

In science, state-level data are available only for 1996, so state improvement in science cannot be measured until 2000.

8th Grade Science

Across the nation, 29% of U.S. eighth graders scored at the Proficient level or higher on the 1996 science NAEP. The percentage of public school 8th graders in each state who scored at the Proficient level or higher ranged from 5% to 41%. In ten states the percentage of students who were at or above the Proficient level was significantly higher than the national average:

Maine – 41%	Massachusetts – 37%	Nebraska – 35%
Montana – 41%	Minnesota – 37%	Wyoming – 34%
North Dakota – 41%	Connecticut – 36%	
Wisconsin – 39%	Iowa – 36%	

"These results reveal an enormous range in educational achievement," Underwood said. "For years, Americans have allowed an accident of geography to shape children's education and their entire future. Good schools are not evenly distributed throughout the country. We need to do more to help children in poorly-performing states do better while simultaneously guiding states at the top to solidify their world-class performance. After all, even the top states still have a long way to go to get even half their students to the Proficient level."

Subgroup Performance

The Goals Panel also examined how different parts of state populations fared in the assessments.

Sex: Nationally and in 9 out of 45 states, the percentage of male students who scored at or above the Proficient level in 4th grade mathematics was higher than the percentage of females who did so. In 6 out of 43 states, males outperformed females in 8th grade mathematics, but there was no significant difference at the national level. In 19 out of 42 states, males outperformed females in 8th grade science. There was no significant difference at the national level.

Race/Ethnicity: At the national level and in most of the states, there were no significant differences between the percentages of White and Asian/Pacific Islander students who scored at the Proficient level or higher on NAEP. However, in the majority of cases at both the national and state levels, the percentages of White students who scored at the Proficient level or higher were significantly greater than the percentages of American Indian/Alaskan Native, Black, and Hispanic students who met this standard.

Parents' Education: In general, the more education students' parents had, the better the students did. Nationally and in almost every case at the state level, students whose parents had some

education beyond high school or whose parents were college graduates outperformed students who reported that neither of their parents had graduated from high school.

School Location: At the national level, students who attended school in urban fringes/large towns outperformed those who attended school in central cities in 4th grade mathematics and 8th grade mathematics. This was also true in roughly one-third of the states.

Poverty: In all cases – nationally and in every state – students who were not eligible for the free/reduced-price lunch program outperformed students who were eligible for this program. This was true across all subjects and grades.

"Examining subgroup scores can help us target our resources where they are most needed," said Underwood. "We need to give special assistance to those in poverty, those whose parents have less income, and those from racial/ethnic groups that traditionally score low. We need to do more to help all of our children reach the National Education Goal of mastering challenging subject matter and learning to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment."

About the Panel

The National Education Goals Panel is a unique bipartisan and intergovernmental body of federal and state officials created in July 1990 to assess and report state and national progress toward achieving the National Education Goals. This report, *Mathematics and Science Achievement State by State, 1998* measures state progress toward Goal 3: Student Achievement and Citizenship and Goal 5: Mathematics and Science. On December 10th the NEGP will release the annual National Education Goals Report for 1998 along with two new studies detailing promising practices used by states to achieve the Goals.

NAEP, authorized by Congress in 1969, is the only nationally representative and ongoing assessment that measures what students know and are able to do in different subject areas. Congress expanded NAEP to allow the reporting of comparable state-by-state results, beginning with the 1990 mathematics assessment. Participation in state-level NAEP is voluntary, and has increased from 40 states and territories in 1990 to 45 in 1996. Thus far, the state-level NAEP has assessed mathematics twice at grade 4 (1992 and 1996) and three times at Grade 8 (in 1990, 1992, and 1996). Science has been assessed only once (in 1996).

For more information on the report, the state results, the National Education Goals, or to arrange for an interview, please contact Chris Beakey at (202) 667-0901, or Emily Wurtz at (202) 724-0015.

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